

GUIDELINES FOR PREVENTION, DETECTION AND CONTROL OF THE SMALL HIVE BEETLE IN TEXAS.

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From a paper prepared by

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PREVENTION

Prevention through sanitation in the honey extraction plant and the apiary is the first line of defense against small hive beetle infestations.

In the Honey Extracting Plant

- Beekeeper hygienic behavior is the best prevention. The honey house and extracting equipment must be kept clean.
- Honey supers should be promptly extracted after they have been pulled from hives and put back onto hives as soon as possible.
- Honey and slum gum should be stored in tightly sealed drums. Wax cappings should be stored in sealed drums or quickly processed into cakes of wax.
- Store combs as you would for wax moth control and examine at least once every three weeks for the presence of larvae.
- Freezing the equipment at -12°C (10°F) for 24 hours is reported to kill all life stages of the beetle. If it's practical for your operation, rotating combs through a chest freezer then tight storage may be worth it.
- In the honey house beetle larvae can be trapped using florescent lights overnight and then swept or vacuumed up and destroyed.

In the Apiary

- Weak colonies should be either combined with other colonies, re-queened, strengthened, or the comb surface reduced in order to maintain enough bees to adequately protect the comb.
- Apiaries in shady locations seem to be more susceptible to invasions and damage than those kept in sunny locations.
- Attention should be made in buying queens and packages as many beetles have been introduced through these means.
- Beetles can easily travel from apiaries that are less than 5 miles apart.

EARLY DETECTION IS THE BEST PROTECTION

To reduce the spread and damage caused by the small hive beetle, beekeepers are encouraged to regularly inspect their colonies to detect early infestations. Currently, the best way to monitor for the presence of small hive beetle is to pay close attention during hive inspections for signs of beetles or the damage they cause.

Visual Detection

- When opening a hive containing beetles, they can be seen running across the combs.
- Often found on bottom boards attempting to hide in dark corners.
- Supers can be placed in the sun on inverted lids for at least 5 minutes. The adult beetles will often make their way to the lids to escape the light coming in and can be found when the supers are lifted.
- Supers can be lightly slammed on the edges of inverted lids to cause wandering beetles to fall into the lids.
- Frames can be lightly tapped sideways on a lid to force beetles that are hiding in cells to fall.
- Masses of adults and larvae may be seen on the combs and bottom board if the infestation is heavy.
- Adult beetles can also be detected at night by shining an amber light, which causes them to move on the frames.

Trapping Detection

- Corrugated cardboard with the paper removed from one side, placed on the bottom board at the rear of the hive, has been successfully used in detecting adult beetles (see below). The beetles are likely seeking a dark and concealing place to hide.

Damage Symptoms

- Damaged combs. Larvae tunnel through comb with stored honey or pollen, damaging or destroying cappings and comb.
- In bad cases, pollen and some honey can be found on the hive bottom board and coming out the entrance of the hive.
- Discolored honey. Larvae defecate in honey and the honey becomes discolored and slimy from the feces.
- The honey develops a characteristic odor of decaying oranges.
- Activity of the larvae causes fermentation and frothiness in the honey.
- The characteristic odor of fermenting honey is sometimes associated with the presence of the small hive beetle.
- Damage and fermentation cause honey to run out of combs, creating a mess in hives or extracting rooms.
- Heavy infestations may cause some colonies to abscond.

CHEMICAL CONTROL

CheckMite+TM plus GuardStar® 40% EC use at the same time is strongly recommended.

Prior to exercising any of the registered control measures you are urged to confirm beetle identity by contacting the Arkansas State Plant Board's Apiary Inspection Service. Always follow label instructions carefully.

In The Hive use CheckMite+TM to Control Adults

- Do not use on hives kept for comb honey production.
- Remove honey supers before application of CheckMite+ Strips and do not replace until 14 days after the strips are removed.
- Prepare a piece of corrugated cardboard approximately 4x4 inches by removing one side to expose the corrugation.
- Cut one CheckMite+ strip in half crossways and staple the two pieces to the corrugated side of the cardboard. Tape over the smooth side of the cardboard (the side opposite the strips) with duct tape, shipping tape or similar tape to prevent the bees from chewing and removing the cardboard. Or use one-sided plastic corrugated sheets commercially available in 5X5 inch format from major beekeeper suppliers.
- Place cardboard as near to the center of the bottom board as possible with the strips down. Make sure the bottom board is clean and the strips lay flat on the bottom board.
- Leave strips in no less than 3 days and no more than 45 days.
- For maximum efficacy leave the strips in the hive for at least 42 days (six weeks). Do not leave strips in hive for more than 45 days.
- Treat no more than four times per year for the small hive beetle.
- Honey supers may be replaced 14 days after strips are removed.

Wear chemical-resistant gloves or at least rubber dishwashing gloves when handling

CheckMite+TM. Dispose of used strips according to label instructions.

These are guidelines. The label instructions constitute the legal use of CheckMite+TM; follow them carefully.

In the Apiary use GuardStar® 40% EC to Control Pupae

- GuardStar® should be used as soon as beetles or larvae are detected in or around hives.

- Mix a solution of 5 ml (1 teaspoon) of GuardStar® 40% EC to 1 gallon of water.
- Apply the solution using a sprinkler can.
- Thoroughly wet the ground in an 18 to 24 inch area in front of each hive. One gallon of this mixture treats about 6 hives.
- Apply in the late evening after bees are inactive.
- Do not apply GuardStar® 40% EC to colony entrances as it is toxic to honey bees. Do not use sprayers when the bees are present for the same reason.

These are guidelines. Label instructions constitute the legal use of GuardStar® 40% EC; follow them carefully.

NON-CHEMICAL CONTROLS

- At this writing there are several promising, non-chemical controls that are being researched and developed.
- Currently there are a couple of in-hive, mechanical traps on the market.
- Lures are being developed to make trapping even more effective.
- Likewise, there are projects currently running that are researching the control of halting the in-ground, pupation process to control population increases.